

ABSTRACT

A system for detecting neutron radiation. A liquid cocktail mixture comprised of a neutron absorber and a scintillator is housed in a Teflon[®] tube having a mirror at one end of the tube and a windowed portal at the other end of the tube. Neutrons that
5 penetrate the tube react with the neutron absorber producing ionization that excites a scintillator to produce photons. A photo-multiplier tube is coupled with the windowed portal for receiving photons and converting the photons to electrical signals. A processing device is coupled to the photo-multiplier output for receiving and analyzing the electrical signals so as to provide a measurement pertaining to the
10 presence and relative strength of neutron radiation. The tube can be adapted to function as a portable survey instrument. Alternatively, the tube can be stretched to cover large apertured areas. In such implementations a wavelength shifter is employed to convert light emitted to another wavelength giving a multiplier effect necessary for long light guides.